Game Changing Development

Parachute Autonomous Disreef (PAD)

Completed Technology Project (2014 - 2015)

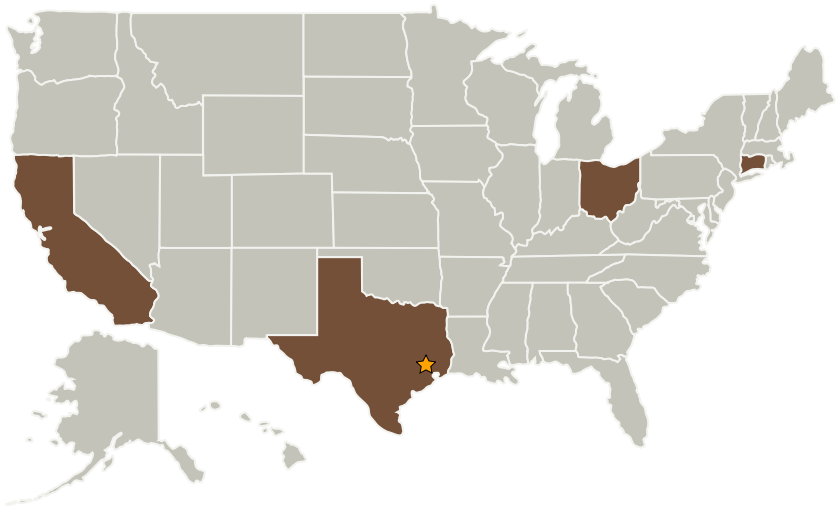
Project Introduction

This task is to demonstrate the functionality and concept of the Parachute Wireless Disreef System (PWDS) which will be installed on a reefed, single parachute. Parachute reefing is a method to control a parachute's drag area by constricting the parachute diameter with a textile cord. Mechanically-actuated, time delay fused, pyrotechnic devices are the common method used to cut the textile cord allowing the
parachute diameter to expand; thus, increasing drag. These mechanical devices' time delay error band yields imprecise control of parachute drag area which can cause leadlag problems in parachute cluster systems yielding an overdesigned system resulting in mass and volume penalties.

Anticipated Benefits

The use of electrically-actuated cord cutters receiving fire commands via a transceiver provides solutions to those known inconsistencies of disreefing singular and parachute clusters by providing precise control. This technology has future applications to abort modes in particular, where the vehicle state has a profound influence on the loads imparted when the parachute disreefs.

Primary U.S. Work Locations and Key Partners



Parachute Autonomous Disreef

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations	
California	Connecticut
Ohio	Texas

Project Transitions

October 2014: Project Start

September 2015: Closed out

Project Management

Program Director:
Mary J Werkheiser

Program Manager:
Gary F Meyering

Principal Investigator:
Charles H Campbell

Technology Maturity (TRL)

Start: **5**
Current: **5**
Estimated End: **5**